Johns Hopkins University

Pre-Award Research Administration Infrastructure: Current Practices and Future Directions

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By
Erica M. Wolfe

Baltimore, Maryland
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Abstract

Competition for federal research funding is increasing as federal funds allotted for research lag behind the growing demand. Reducing administrative burdens on research faculty would allow more time for faculty to conduct research and seek out additional funding for new research projects. Research administration needs to be efficient in order for universities to remain competitive. The structure of an organization impacts both strategic decision making and organizational functions. However, current practices regarding organizational structure and trends in pre-award research administration are not well documented. The objective of this capstone project was to collect data on the current pre-award research administration organizational structures and functions at institutions similar to Johns Hopkins University. The data was analyzed to identify which models are most effective or lead to better outcomes in pre-award research management.

A survey distributed to fifteen institutions was used to collect data for the capstone project. Six institutions completed the survey, which was a 40% response rate. Of the six institutions that completed the survey, three of the institutions reported using a hybrid structure for research administration, two institutions reported using a centralized structure for research administration, and one institution reported using a decentralized structure for research administration. The two most commonly reported metrics on the survey for evaluating pre-award research management were turnaround time and workload per staff. However, it was difficult to use these metrics to compare the efficiency of administrations at different institutions to each other. Part of the difficulty comparing different research administration infrastructures and pre-award research management outcomes is that standard measures fail to account for differences in operational procedures, complexities involved in certain types of proposals, and institutional goals.

There were many similarities between the institutions surveyed, as expected, yet none of the pre-award research administrations functioned identically. Overall, the type of research administration structure alone did not appear to influence the function or efficiency of the different institutions. Additional literature and case studies indicated that the skilled and sufficient research administration staff has a greater impact on the efficiency of research administration than the organizational structures or processes. Improving pre-award research administrative functions often required improving communication and working relationships between research administrators and faculty.

The best organizational structure for pre-award research administration depends on the needs, culture, and goals of the specific institution. However, it is not the structures themselves that determine success, rather the proper implementation and management of these structures. Based on the capstone project results, institutional efforts to improve pre-award research administration will likely lead to novel hybrid structures instead of purely centralized or decentralized organizational structures.

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Chapter 1
Introduction

Background

Vannevar Bush, former head of the United States Office of Scientific Research and Development, in his 1945 report, *Science, The Endless Frontier*, wrote to U.S. President Franklin Roosevelt that funding scientific research should be a priority for the government. Bush argued that staying at the forefront of research would keep the United States a leader in knowledge, innovation, medicine, and technology. He recognized that while industry and the government both dedicated funding to applied research, basic research was mostly left to institutions of higher learning. “Research administration developed rapidly” at universities first due to the resulting influx of federal funding, and subsequently due to the increases in regulations and compliance requirements associated with proper stewardship of federal funds (Myers and Smith 2008, 16). Federal regulations influence nearly every aspect of research such as: the appropriate use of funds and establishment of appropriate internal controls required through the Office of Management and Budget Uniform Guidance; proper disposal of chemicals through the Environmental Protection Agency; protection of human subjects in research through the Department of Health and Human Services, and the treatment of intellectual property developed under federally funded research through the Bayh-Dole Act.

Research administrators fill a dual role in most universities. They not only support faculty in their efforts to procure awards for research, they also protect the university by ensuring that the management of research funds complies with institutional and sponsor requirements (Kirby 1992). At most institutions of higher education, there is an established infrastructure designed to support the efforts of research administration, and which has impacted the time and costs associated with managing research (Kirby 1996). While Kirby (1992) indicated research

administration must strive for improved efficiency to get the most out of research funds, “the huge variety in how [research management] is delivered across the sector, and the constant restructuring of research services within universities, suggests a lack of understanding regarding how it can most effectively be delivered” (Derrick and Nickson 2014, 12).

Each research institution has a unique culture and set of goals for research and administrative outcomes. Different organizational structures have distinct strengths or weaknesses which impact institutional strategic decision making and operational functions (Fredrickson 1986), so the best organizational structure will vary depending on current needs and goals at each institution. To achieve the specific goals of an institution, research administration needs to be adaptable and periodically make adjustments to organizational structures and the services provided by the administration offices (Kulakowski 2006). Organizational structures that are designed to support institutional goals can increase administration efficiency by eliminating redundancies, and clearly defining staff roles and responsibilities (Corkindale 2011).

Today, the federal government provides the majority of funding for research to universities, however, in recent years the amount funding has either stagnated or decreased (Jahnke 2017). While some sources have continued to increase funding for university research and development (R&D) expenditures, “the biggest increases have come from university coffers” (Jahnke 2017). The most recent data from the American Association for the Advancement of Science (AAAS) (2017) shows that university R&D expenditures peaked in 2011 at $67.24 billion (Figure 1). Between 2011 and 2014, total university R&D expenditures decreased 2.5% to $65.6 billion. During that timeframe, federal funding sources decreased total contributions from $43 billion to $37.9 billion, and state sources decreased total contributions by $170 million. Over the same period of time, universities increased contributions by $2.63 billion, industry increased

contributions by $380 million, and other sources increased contributions by $660 million. AAAS data showed that in 2011, federal sources provided 64% of total funding for university R&D expenditures, state sources provided 5.8%, universities provided 18%, industry provided 5.0%, and other sources provided 7.3%. In 2014, the federal share of university R&D expenditures had decreased to 57.7%, the state share remained relatively unchanged at 5.6%, and the university, industry and other shares increased to 22.4%, 5.7% and 8.5%, respectively.

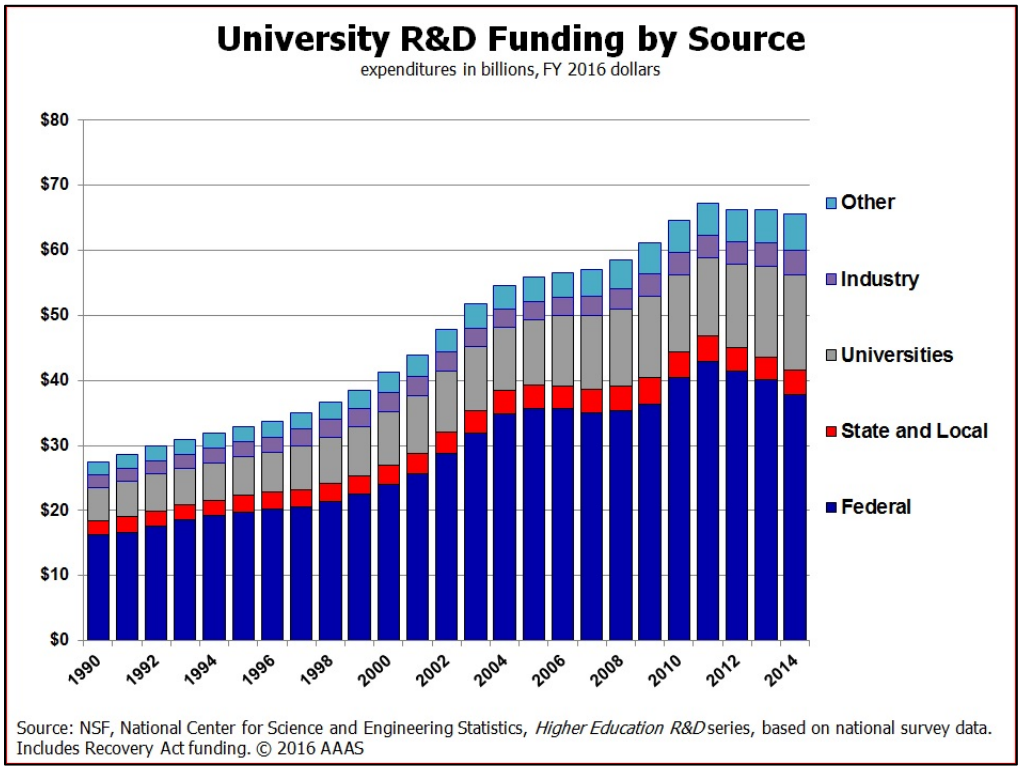

Figure 1: University R&D Funding By Source, 1990-2014

Despite the stagnation in available funding for university research, proposals seeking funding have continued to increase, creating steep competition (Rockey 2015). Efficient research administration can reduce the administrative burdens of the faculty, leaving the faculty more time to conduct research, or seek out additional funding opportunities to support new research projects (Wimsatt, Trice, and Langley 2009). Therefore, university research administration must

not only continue to seek funding for research but must also efficiently manage the research in order to remain competitive. Yet, there is no one standard model used to achieve these goals.

Evaluation of existing pre-award administration infrastructure with standard metrics or performance measures could help to identify the impact of the infrastructure on the effectiveness and efficiency of pre-award research administration by comparing currently used infrastructure at different institutions of higher education. However, there is a "current lack of standard performance metrics for research administration services" (Marina, Davis-Hamilton, and Charmanski 2015, 97). While some standards or other measurements are available through consulting services (National Council of University Research Administrators 2017; Huron Consulting Group 2014), a lack of publicly available standards creates difficulties in effectively identifying the advantages and disadvantages of different structures on research administration. Knowing how different organizational structures affect research administration would benefit institutional leadership in strategic decision making.

Statement of Problem

Faculty spend a significant amount of their time on administrative tasks associated with managing federally funded research, and about half of that time is spent on pre-award activities (Wimsatt, Trice, and Langley 2009). Improvements in pre-award research administration processes can lead to more funded proposals and a greater amount of funds awarded (Strakos and Riney 2006). However, Saas and Kemp (2017) suggest there is no common version of how non-financial pre-award administrative processes should be conducted. Current practices regarding organizational structure and trends in pre-award research administration are not well documented. Institutions would be better equipped to make strategic decisions about changes to research administration infrastructure if there were records of different organizational structures,

research administration responsibilities, and the standard outcomes associated with specific models. Standard metrics or benchmarks could provide a means for evaluating the efficiency and outcomes of different administrative structures and functions.

Objective

The objective of this capstone project was to collect data on the current pre-award research administration organizational structures and functions at institutions of higher education with associated medical schools with similar volumes of research expenditures. The data were compared to identify which models are most effective or lead to better research management outcomes. The project gathered data on recent organizational changes to the research administration offices at the surveyed institutions to identify any notable trends in research administration infrastructure. This data provided a better understanding of possible common visions for non-financial pre-award processes at the surveyed institutions. The information gathered was also be used to develop recommendations for further research.

Significance

"Research administrators should not let organizational changes 'happen' to them. They should be involved in planning and implementing change at their institutions" (Killoren and Eyerly 1997, 31). This project will help research administrators and university leadership obtain a better understanding of current organizational structures and also identify trends in organizational changes. This information could ultimately lead to improved support for research programs.

Chapter 2
Literature Review

Importance of Organizational Structure

"Structure refers to an organization's internal pattern of relationships, authority, and communication" (Fredrickson 1986, 282). One theory of organizational structure is that the structure develops to fit the functions of the organization (Fredrickson 1986; Kulakowski 2006). However, Fredrickson (1986) argued that the structure of an organization also affects the functions and strategic decision making due to the inherent characteristics of the different models. The types of structures used in research administration typically fall into one of three categories: centralized, decentralized, or hybrid. Each of these models has distinct strengths and weaknesses.

Centralized structures localize major decisions to a senior management team and consolidate offices (Fredrickson 1986; Jarzabkowski 2002). Consolidation of offices and authority enables institutional leadership to easily set goals and priorities for the entire organization. Centralization in research administration is considered to increase efficiency, improve internal controls, provide consistency in policy creation and application, and allow for greater specialization of administrative staff (Kulakowski 2006; Strakos and Riney 2006; Snyder et al. 2016; Jarzabkowski 2002). Another advantage to a centralized structure is the ability to make changes proactively to avoid problems (Haley and Champagne Jr. 2017). Yet, research faculty can view centralized structures negatively identifying centralization as both impersonal and an over-formalization of regulations (Snyder et al. 2016). Consolidating authority for strategic decision making at an organization can lead to a lack of diversity in leadership positions which can lead to groupthink and prevent innovation (Jarzabkowski 2002). Two key components to successfully implementing centralized research administrations are to (1) change the

perspectives of faculty and (2) properly train the research administration staff so there can still be a culture of individualized attention without the creating additional amounts of process, rules, and paperwork (Snyder et al. 2016; Goldenberg et al. 2016).

In contrast, decentralized structures distribute authority for strategic decision making and budget allocation to multiple offices further down the institutional hierarchy (Jarzabkowski 2002). One perceived benefit to decentralization of research administration offices is that administrators are more likely to interact with faculty which improves both communication and working relationships (Nguyen and Meek 2015; Taylor 2006). Decentralization provides departments with greater autonomy and can lead to more innovation than is typically associated with a centralized structure. However, differences in department priorities can cause a political climate to develop within the institution, making it difficult to implement significant changes (Fredrickson 1986). Instead, most of the changes made in a decentralized structure are incremental and individual problems are addressed only after they are identified (Fredrickson 1986; Jarzabkowski 2002; Smith et al. 2006). Poorly defined staff roles and responsibilities in decentralized organizational structures can create redundancies in staffing or effort which reduces organizational efficiency (Snyder et al. 2016). Decentralized structures do not have a unified method of resource allocation; attempts to align the different allocation strategies would not only likely encounter resistance from staff but could also be cost prohibitive (Jarzabkowski 2002; Smith et al. 2006). To be effective, decentralized research administration requires clear distinctions of duties required by staff, metrics used to benchmark regular functions and progress, as well as communication plans to foster the creation of institution-wide incentives and goals (Nguyen and Meek 2015). Table 1 provides a summary of the strengths and weaknesses indicated for centralized and decentralized organizational structures.

Table 1. Perceived Strengths and Weaknesses of Two Organizational Structures

	Centralized	Decentralized
Strengths	• Consistency in policy and application • Streamlined processes • Unified strategic planning • Acts proactively	• Better communication with faculty • More autonomy for departments • Facilitates Innovation
Weaknesses	• Overly bureaucratic • Inflexible • Impersonal • Potential for groupthink	• Lack of overall institutional goals • Can become political • Deals with problems reactively • Possible redundant efforts • Inconsistency in fund allocation

Institutions may use different aspects of each of these models to create a hybrid model. Smith et al. (2006, 9) reasoned that decentralized research administrations are actually hybrid structures: "All decentralized organizations are in fact a hybrid of tasks handled on a decentralized basis plus oversight accomplished through the headquarters area. Decentralized academic units vary in terms of which activities are decentralized versus centralized." Hybrid models offer a way to incorporate the consistency of centralization, while not losing the direct communications gained through decentralization. While decentralization of research administration might work well for heavily funded departments, a hybrid structure could be beneficial to departments that are not typically awarded much funding (e.g. humanities or social sciences). By pooling resources into a centralized office, departments that receive fewer funding opportunities could create shared research administrative services that would provide the faculty access to more specialized administrative staff that might otherwise not be available to them (Jarzabkowski 2002; Smith et al. 2006; Huron Consulting Group 2009). This would not have to impact departments that have well established, independent decentralized research administration offices at the same institution.

Killoren and Eyerly (1997) suggested a theoretical hybrid system that leveraged virtual systems to create a centralized research administration structure without actually moving employees away from current departments or payroll allocations. While this model might be a possibility, the cost associated with both the investment in procuring (or developing) new technology and the implementation would be substantial and require a unified institutional effort. The availability of the software required to implement a virtual central administration might also be a limiting factor. A review of current technology used in managing research showed that the majority of software in use at research universities is designed to manage finances, human resources, and student information system (Saas and Kemp 2017). Non-financial pre-award functions were found to either lack commercial software solutions, or to have specific institutionally developed solutions. Saas and Kemp (2017) suggested research administrators develop a common vision of non-financial software needs that would benefit a large number of institutions so commercially available programs can be developed around that vision, rather than having individual systems at each institution.

Organizational Trends in Research Administration Structures

There is disagreement in the literature as to whether there is a trend toward centralization or decentralization of research administration structures (Smith et al. 2006; Nguyen and Meek 2015). A number of articles reviewed indicated that decentralized structures were the standard state for research administration in the past (Fredrickson 1986; Killoren and Eyerly 1997; Taylor 2006). Since historically, research administration was decentralized, it would stand to reason that the trend has been for research administration to become more centralized. Centralization of administrative structures would also be expected as a result of increased scrutiny of internal

controls by federal sponsoring agencies. A trend toward centralization emphasizes institutional values for consistency in processes and internal controls.

In contrast to other sources, Nguyen and Meek (2015) noted a trend toward decentralization of research administration. Nguyen and Meek (2015, 56) stressed the need for decentralization in institutions to foster innovative research, even going so far as to claim that "[a] decentralized structure, both vertically and horizontally, appears to be most suitable for research to take place." Nguyen and Meek (2015) suggested fostering centralized communications in decentralized structures through the formation of "lateral linkages" such as committees or advisory boards, which are already common at institutions. According to Derrick and Nickson (2014, 31): "Previous research has suggested that, where possible, a good research management strategy should not produce central control, or even supervision, but will combine a framework within which academics make their own decision and a system to identify any emerging problems at an early stage."

The Role of Research Administration

Despite research administration constantly adapting to become more efficient and provide better services, the challenges a research administrator faces today are not significantly different than the challenges faced in the past. These challenges include stagnating federal funds for research, increasing complexity of research projects, stricter compliance requirements, and increased competition for research funds (Killoren and Eyerly 1997). The dual role of research administrators to support research faculty and protect the university by ensuring good stewardship of funds creates conflicts between administration and research faculty (Kirby 1992). According to a recent survey conducted by the Society of Research Administrators, 18% of surveyed research administrators felt that research faculty did not understand the role of research

administrators at the institution, while 35% felt the faculty understood the role "some of the time" (Davis-Hamilton 2017). This conflict is partly due to the perception by some research faculty that administrators rely too heavily on rules, leading to increased paperwork and reduced efficiency (Kirby 1992; Cole 2007; Wimsatt, Trice, and Langley 2009). To overcome these perceptions and improve research administration efficiency, research administrators need to be highly skilled and knowledgeable (Wimsatt, Trice, and Langley 2009; Smith et al. 2006; Chun 2010; Nguyen and Meek 2015).

The Federal Demonstration Partnership (FDP) Faculty Workload Survey of 2005 showed that university faculty members work longer hours than in previous years, in part due to a number of administrative duties associated with managing federal grants (Wimsatt, Trice, and Langley 2009). The FDP reported that faculty spent 42% of their time dedicated to federally funded research on administrative tasks. The time spent on these administrative tasks was split evenly between pre-award and post award activities. Furthermore, the faculty surveyed reported that many of the administrative tasks they were doing could be done by others. A follow-up FDP Faculty Workload Survey in 2012 found that "[o]verall, the situation with respect to administrative workload seems to have changed very little over the past several years" (Schneider et al. 2014, 100). Similar to the research faculty, research administrators have also experienced workload increases. Between 2007 and 2010 research administrators reported in the Research Administrator Stress Perception Surveys (RASPerS) an increase in workload, additional stress levels, and more issues regarding work-life balance (Shambrook 2012).

The findings in the FDP and RASPerS surveys lend themselves to examining and creating more efficient research management processes, but solutions are not always straightforward. Penn State pre-award research administration found in the early 1990s that as

the proposal review process became more efficient, more proposals would arrive closer to the deadline leaving research administrators with larger workloads and insufficient time to provide proper review; the term “Deadline Creep” was used to describe this trend (Killoren and Eyerly 1997, 27). This could indicate that workloads noted in the FDP and RASPerS surveys might not simply be a problem with efficiency or services offered but maybe be a problem with identifying the most effective structures and processes for research administration in order to satisfy both faculty and research administrators. Wimsatt, Trice, and Langley (2009, 80) suggested that there is a need for “new types of organizational support structures” in order for administrators to be able to more effectively support the growing needs of the research faculty. It is possible that adopting a more effective organizational structure could alleviate some of the workload and stress experienced by both faculty and administrators.

Better infrastructure and software solutions alone will not be enough to efficiently manage research. Research administrators need to be highly skilled and knowledgeable not only to successfully navigate federal regulations, but also to earn the respect of the research faculty (Wimsatt, Trice, and Langley 2009; Smith et al. 2006; Chun 2010; Nguyen and Meek 2015). Additionally, research administrators should be involved and contribute to the professional community. In a study of research examining research management, Derrick and Nickson (2014, 29) reported that a significant proportion of the literature on the subject was reported in the *Journal of Research Administration* which “[was] not surprising as the profession [had] better understanding of its own role than external actors and, possibly, more interest in exploring how to best operate.” Similarly, Chun (2010, 81) remarked that “much of the innovations and best practices in the field [of research administration] stem from conversations among research administrators at other institutions.”

Metrics

Increased competition for federal funding has created a need for measures to compare efficiencies of research management at different research institutions (Waugaman, Kirby, and Tornatzky 2006). These performance measures, or metrics, can be used to evaluate efficiency, progress and identify problems in processes. When trying to analyze performance metrics for research administration, quantitative metrics are not always enough, qualitative metrics are required as well (Waugaman, Kirby, and Tornatzky 2006; Marina, Davis-Hamilton, and Charmanski 2015). Some of the commonly noted metrics used in examining research administration efficiency are administrative workload, proposal turnaround time, and funding success rate (National Council of University Research Administrators 2017, Waugaman, Kirby, and Tornatzky 2006; Marina, Davis-Hamilton, and Charmanski 2015). However, these metrics often have significant limitations when trying to compare different institutions.

One obstacle in comparing metrics is that no two institutions of higher education operate in the exact same manner, have the same goals, or submit proposals for the exact same funding opportunities (Waugaman, Kirby, and Tornatzky 2006). Additionally, comparing pre-award administration metrics that do not account for the complexities associated with each proposal (e.g. multidisciplinary projects, international collaborations) might lead to incorrect conclusions about the efficiency of the different research administration offices. Marina, Davis-Hamilton, and Charmanski (2015) suggested using metrics such as a matrix or average complexity score to compensate for additional time and resources needed to process more complex awards. However, these methods are admittedly difficult to set up, use, and are “highly subjective” (Marina, Davis-Hamilton, and Charmanski 2015, 98).

In lieu of establishing standard metrics used to compare institutions, Waugaman, Kirby, and Tornatzky (2006, 144) proposed that establishing a "normal" range of various metrics for institutional peer groups would be a better solution. Some standards and benchmark values have been established by different professional groups or consultants, such as the National Council of University Research Administrators (2017) which uses institutional "Standards" to evaluate institutions, and the Huron Consulting Group (2014) RADIUS Benchmarking Survey. However, the author was unable to find any published benchmarks or normal values used to compare peer institutions.

Case Studies

Creation of Pre-Award Infrastructure

"A large multi-specialty academic medical center" (the Center) faced with slow turnaround times needed to find a way to facilitate more efficient contract processing and budget negotiations for clinical research (Strakos and Riney 2006, 48). The Center had a decentralized structure that separated contract completion and budget creation between two offices located in different departments. In order to improve communication and streamline contract processing, two key staff positions were reallocated from the separate departments and combined into one central office. This was done as part of an effort to create a Circle of Support. "A Circle of Support...is a strategic plan focusing on customer service and satisfaction, which provides resources necessary for expeditious pre-award processes" (Strakos and Riney 2006, 50). Evaluation of this model showed that it effectively helped eliminate delays caused by the previous process flow, resulting in an increase in contracts executed and total funding the following year.

Creation of Decentralized Structure

In 2001, the University of Hawaii, Department of Surgery created a committee to evaluate the state of support for research faculty (Chun 2010). The committee determined that the current level of research support was insufficient and began the process of creating a departmental infrastructure for research administration. The goal of the change was to put experienced research administrators closer to research faculty to facilitate communication, and to distribute authority to lower levels of the organizational hierarchy. Difficulty locating funds impeded the initial efforts to create the new infrastructure. Fortunately, senior management was dedicated to the project and provided funds to support the implementation of the departmental infrastructure. After implementation, there was an increase in proposal submissions.

Review of Decentralized Research Administration at MIT

The Roles and Organizational Structure Team (the Team) at Massachusetts Institute of Technology (MIT) investigated ways to improve research administration at the institution (Smith et al. 2006). The Team found that institutions in the United States were showing a trend toward centralizing research administration, yet despite encouragement for this trend it was found to be impractical to implement at MIT. The Team determined it would require substantial support and funding from the institution to centralize administrative functions and to standardize the variety of methods used across the institution to allocate resources for research administration. Interestingly, despite encouraging the trend to centralization, the committee did not find that decentralized structures created a significant lack of internal controls or increased audit findings.

Echoing the sentiments of Fredrickson (1986), the Team determined the decentralization of research administration impeded the ability of the institution to implement significant changes. Instead, the Team conceded that institution-wide proactive changes would not be

possible and problems would need to be addressed when identified (Smith et al. 2006). Some problems identified during the review were the result of inconsistent practices in different departments and the difficulty obtaining appropriate metrics to base recommendations on due to the complex nature of the data required for proper analysis. Different departments were not assigning staff designations to research administrators in a consistent manner which led to inequalities in job requirements and compensation. The Team felt this contributed to the difficulty in retaining research administrative staff. The Team postulated that some of the difficulties being encountered by research administration at the institution were actually due to a lack of staffing or appropriate training, not in an inherent problem with the current organizational structure.

The conclusion of the report by Smith et al. (2006) determined that organizational structure did not play a significant role in the ability of research administration to function well, rather the critical factor in effectiveness and efficiency was the quality of individual staff members. They found there was a need for research administrators to be well versed in all aspects of research administration when working in decentralized offices. This skill set would need to include familiarization with specialized software and web based systems involved with grant submission and management. The Team indicated that one advantage of a centralized administration would be the allowance for more research administration specialists as opposed to generalists.

Review of Central Research Administration at UCLA

The University of California Los Angeles (UCLA) hired Huron Consulting Group (2009) to assess the central research administration infrastructure and functions, and provide recommendations that would lead to operational improvements. The report delivered by the

Huron Consulting Group (2009, 4) noted several problems:

> Communication between the central offices and departments [was] often insufficient, resulting in misperceptions and misunderstandings. For example, central offices [were] often perceived as focusing more on "policing" the environment as opposed to "facilitating" the research, while departments are often perceived as lacking a basic understanding of the potential consequences of non-compliance.

The report stated some additional problems were caused by insufficient leadership due to a prolonged vacancy in a strategically significant role, poorly defined roles for research administration, and inconsistency in practices regarding "recruiting, hiring, evaluating, [and] terminating" research administrators (Huron Consulting Group 2009, 4). The recommendations provided by Huron (2009, 6) included improving support to departments by providing consistent support through either decentralized offices or pooled resources, and establishing a "roles and responsibilities matrix for research administration." After implementing changes based on the recommendations, UCLA reported improvements in the research administration functions (Waugh 2017).

Chapter 3
Methods

The objective of the capstone project was to compare the current pre-award research administration organizational structures and functions at institutions of higher education with associated medical schools with similar volumes of research expenditures in order to (1) gain a better understanding of possible common visions for non-financial pre-award processes at the surveyed institutions, and (2) identify which models are most effective. The primary data for this project was gathered from a survey distributed to fifteen research-intensive institutions with associated medical schools and similar research expenditures to Johns Hopkins University. Institutions were identified using information from the Higher Education Research and Development Survey (HERD) conducted by the National Center for Science and Engineering Statistics, a division of the National Science Foundation (retrieved from https://ncsesdata.nsf.gov/profiles/site?method=rankingBySource&ds=herd).

Individuals who are experts in the field of research administration, and had the authority to answer the survey on behalf of their institution were invited to participate. Only one response per institution was requested. The survey was created using Google Forms and was distributed via email to the identified contact at each institution. Prior to contacting the institutions, the questionnaire was approved by the Johns Hopkins University Homewood Institutional Review Board (Appendix 1). Surveys were sent to the following institutions: (1) Johns Hopkins University; (2) University of Michigan – Ann Arbor; (3) University of Washington; (4) University of California – San Francisco; (5) University of California – San Diego; (6) University of Wisconsin – Madison; (7) Duke University; (8) Stanford University; (9) University of California – Los Angeles; (10) Harvard University; (11) University of North Carolina –

Chapel Hill; (12) Cornell University; (13) University of Minnesota – Twin Cities; (14) Columbia University; and (15) University of Pennsylvania.

The survey predominantly consisted of check boxes or radio button questions in order to reduce the amount of time required to take the survey. There were a few open text responses requested on questions that required more details. The beginning of the survey verified the institution and type of office (e.g. centralized, decentralized) at which the respondent was currently employed, and also confirmed that the respondent was knowledgeable about the structure and function of the pre-award administration office. The following sections of the survey collected data on the number of research faculty supported by the pre-award office, the number of proposals submitted the previous calendar year, administration staff designations, the number of staff employed in each designation, the method of work distribution, the average number of years of staff experience, organizational charts, currently used metrics, and recent changes to organizational structure or function. Survey responses were compared to identify similarities, significant differences, or trends in structures and functions of the various pre-award administration offices. There was a 40% response rate for the survey.

Additional data was gathered to help analyze and interpret the information obtained from the survey. Further data about the institutions surveyed were gathered from university websites and other official sources, like the National Science Foundation. Articles from professional journals, such as the *Journal of Research Administration*, were used to provide background data on case studies, previous research, and best practices. Specific attention was given to case studies which described changes in pre-award research administration structure, and the impacts of those changes on the efficiency or effectiveness of the research administration office.

Limitations

The type of information needed to comprehensively compare progress or success of different pre-award administration offices is too complex to capture in a simple survey. The purpose of this capstone project was not to identify statistically significant differences between organizational structures but to gain a better understanding of current practices and identify potential common visions for non-financial pre-award processes. As discussed in the literature review, direct comparison of research administration metrics between institutions provides little value outside of the correct context. For this paper, survey participants were part of research administration upper management. These individuals are typically busy and might not be motivated to fill out a survey. In order to increase potential participation, the survey was kept brief with only a few open-ended questions. Responses to open-ended questions were brief.

Chapter 4
Results and Discussion

Results

Structure and Pre-Award Capacity

Six of the fifteen institutions invited to complete the survey participated which is a 40% response rate. Those six institutions were Johns Hopkins University (JHU), the University of Michigan – Ann Arbor (UM), the University of Wisconsin – Madison (UW), Stanford University (SU), the University of California – San Diego (UCSD), and the University of Pennsylvania (UP). The organizational structures reported for research administration at these institutions were 33.3% centralized (UM and SU), 50% hybrid (UCSD, UW, and UP) and 16.7% decentralized (JHU). Three of the institutions (SU, UW, and UP) combined pre-award and post-award functions in the research administration offices, while two institutions separated pre-award and post-award functions into separate offices (UM and JHU). UCSD did not provide a response to this question.

All of the survey participants offered the following pre-award administration services: proposal tools (e.g. timelines, check lists, budget templates), proposal review, proposal approval, proposal submission, and negotiation of award terms and conditions. Four institutions (JHU, UW, UP, and SU) offered subaward agreement preparation through pre-award administration. Certain services were only provided by one institution. These services included: finding funding (UP), proposal development (SU), budget creation (SU), form completion (SU), and post-award non-financial award administration of outgoing subawards (UM). A list of different services handled by the pre-award offices can be seen in Figure 2.

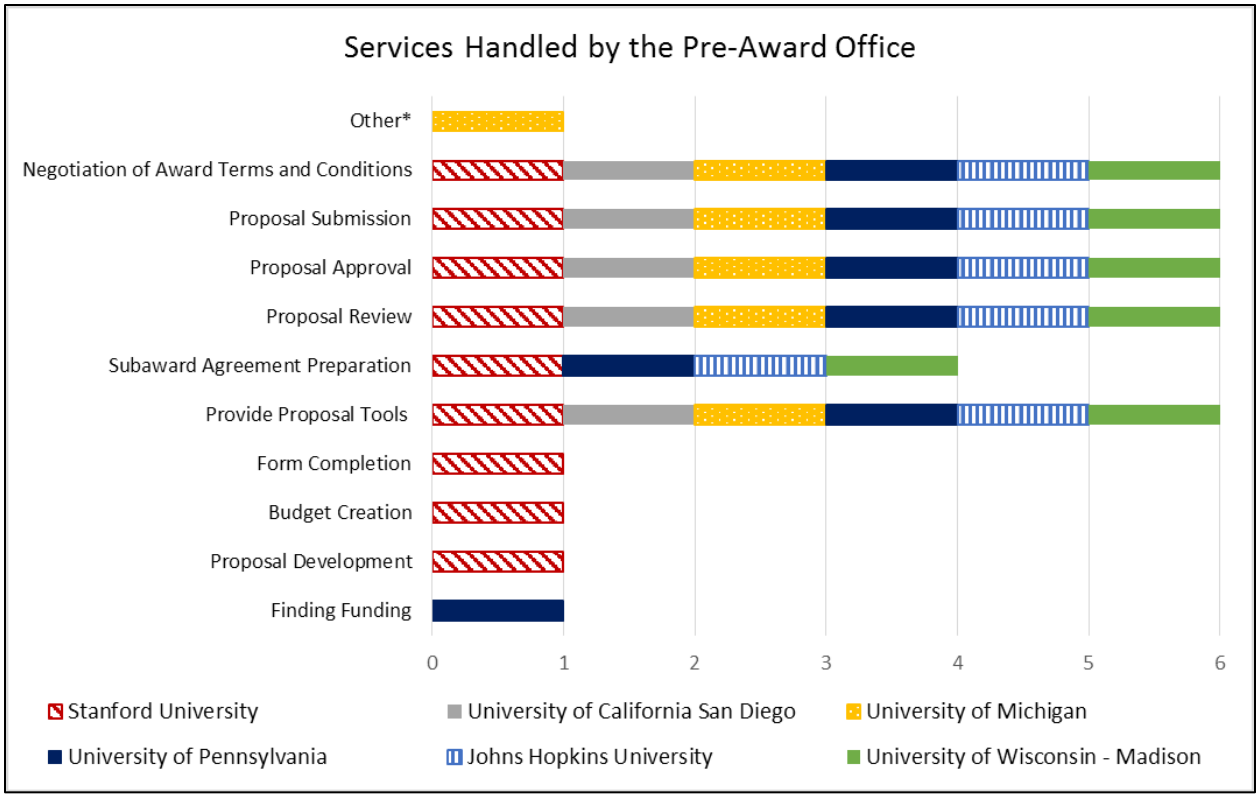

Figure 2. Services offered by Pre-Award Administration by Institution
**Other services included post-award non-financial award administration of outgoing subawards.*

Each of the research administration offices surveyed submitted thousands of proposals in the previous year and interacted with thousands of researchers (Table 2). The number of researchers supported at UP was not included in these results due to incorrect data entered into the survey. UM had the highest ratio of proposals submitted to researchers supported (3.2 proposals per researcher), while JHU, UW, SU, and UCSD all had similar ratios (1.9, 1.8, 1.5, and 1.4 respectively). Most respondents had similar ratios of new proposals awarded per researchers supported: 1.3 (SU), 1.2 (UM), 1.1 (UW), 1.0 (UCSD), and 0.7 (JHU). According to the survey responses, the workload was predominantly distributed to pre-award staff by department for four of the institutions (JHU, UM, SC, and UCSD), while UP used a hybrid model which accounted for both department and agreement type to distribute proposals. UW predominately used a first in, first out model to distribute workload to pre-award staff.

Table 2. Research Administration Worklaod in 2016

	Researchers Supported	Proposals Submitted	New Awards Funded	Administration Structure
University of Michigan	2270	7247	2746	Centralized
University of Wisconsin - Madison	2250	4000	2400	Hybrid
Stanford University	1300	2000	1675	Centralized
University of California San Diego	1600	2300	1600	Hybrid
University of Pennsylvania	--	3526	1128	Hybrid
Johns Hopkins University	1300	2405	930	Decentralized

Research Administration Staff

Each of the research administration offices surveyed employed sixteen staff members or more. There was some variability in the amount of experience of the staff at the six different research administration offices. One institution (UCSD) reported that the staff stays with the pre-award office for an average of ten to fifteen years; two of the six institutions (UM and UP) reported that there was an average of five to ten years of employment in the pre-award office; and three institutions (JHU, UW, and SU) reported the average length of employment at one to five years. Each of the six institutions encouraged promoting employees from within the institution rather than external to the institution. Employee satisfaction was measured at the following frequencies at each institution: semi-annually (SU), annually (UCSD), every two years (UM and UW) every three years (UP), and never (JHU).

Five institutions (JHU, UM, UW, SU, and UCSD) reported that on average, it required one to three months to fill vacancies while the other institution (UP) reported an average of four to six months. Two of the institutions (SU and UP) typically obtained new hires from sources external to the institution while the other four (JHU, UM, UW, and UCSD) reported an even mix of new hires from both internal and external sources. Despite having an even mix of internal and external additions to the pre-award administration offices, JHU, UM, and UW reported that all

new hires require significant training. The other three institutions reported that there was an even mix of new hires that did or did not require significant training.

Recent Changes

Five of the six institutions (JHU, UW, SU, UCSD, and UP) reported that there had been organizational changes made to the research administration offices within the past five years. Four of the five changes were described in a free text answer portion of the survey. JHU recently combined several divisional offices into one unit. JHU reported on the survey that this change was only partially successful at meeting the desired outcomes, however, JHU did not specify the desired outcome. UW recently made changes in the research administration organizational structure, implemented "continual process improvements," and "absorbed a [four] member industry contracting team." Similar to JHU, UW reported the changes implemented were only partially successful at meet desired outcomes. UCSD reported making changes to the method of workload distribution from distributing assignments by sponsor or sponsor type to distributing assignments based on departments. The changes were recent and the success of those changes had not yet been evaluated. UP reported changes had been made to improve service for internal customers and increase efficiency, but the changes made had only been partially successful at achieving desired goals.

Metrics

Each of the six institutions used metrics to measure the efficiency or success of the pre-award administration offices. There was some agreement between the institutions as to which metrics were the most informative. Five institutions reported that the workload, or numbers of proposals or awards processed by staff, were among the most informative metrics. Four of the

institutions mentioned turnaround or processing times. The complete list of preferred metrics follows:

- Current Workload Per Staff Member (SU, UCSD, UP, JHU, UW)
- Processing Time/Turnaround Time for Awards and Contracts (SU, UP, JHU. UW)
- Subaward Issuance (JHU)
- Workload Distribution (SU)
- Assignment Completions Per Staff Member (UW)
- Time to Complete Contract Negotiations (UW)
- Customer Satisfaction (UM)
- Number of Proposals/Awards by Department (UCSD)
- "Trends in Number of Actions by Service Line by Department By Month" (UCSD)
- "Top by Sponsors by Service Lines" (UCSD)

Discussion

The organizational structure for research administration for survey respondents did not appear to have a direct impact on the method of distributing pre-award workloads; the type of services handled by pre-award administration; whether or not pre-award and post-award activities were contained in the same office; the average length of time employees remained with the pre-award office; amount of training new employees required upon hire; frequency of employee satisfaction measures; the time required to fill vacant positions in research administration; or the most valued metrics. The two centralized research administration infrastructures (UM and SU) reported higher ratios of new awards funded per researchers at 1.2 and 1.3, respectively, compared to the hybrid infrastructures (UW and UCSD) at 1.1 and 1.0, respectively, or the decentralized infrastructures (JHU) at 0.7.

The ratios of proposals per researcher were more varied with the centralized infrastructure at 3.2 and 1.5 (UM and SU, respectively); the hybrid infrastructures (UW and UCSD) at 1.8 and 1.4, respectively; and the decentralized infrastructure (JHU) at 1.9. Overall, the type of research administration infrastructure alone did not appear to influence the function or efficiency of the different institutions.

Organizational Structure and R&D Expenditures

The institutions were ranked by research and development (R&D) expenditures by the National Science Foundation (NSF) in 2015 as follows: UP was number seventeen, SU was number eight, UW was number six, UCSD was number five, UM was number two, and JHU was number one. Between 2010 and 2015, all of the survey respondents had an overall increase in R&D expenditures (Table 3). SU showed the greatest relative change at nearly an 18%, increasing R&D expenditures from approximately $840 million in 2010 to just over $1 billion in 2015. UP had the least relative change in R&D expenditures starting in 2010 at $836 million and increasing 3.2% to $864 million in 2015. UW had a slightly larger relative change than UP at 3.7% while JHU, UM, and UCSD had similar relative changes, all between 13% and 15%. Interestingly, the three hybrid structures showed the least total gain over between 2010 and 2015. Each institution, with the exception of UM, reported making changes to research administration structure or function over this timeframe.

Table 3. Changes in Research And Development Expenditures from 2010 to 2015

	Total Change (in $000)	Relative Change	Administration Structure
University of Pennsylvania	27,746	3.2%	Hybrid
University of Wisconsin-Madison	39,782	3.7%	Hybrid
University of California-San Diego	158,247	14.4%	Hybrid
Stanford University	182,712	17.9%	Centralized
University of Michigan-Ann Arbor	184,833	13.5%	Centralized
Johns Hopkins University	301,197	13.1%	Decentralized

These organizational changes are just one reason why it is difficult to determine if the type of structure alone can account for the different trends in R&D expenditures seen between 2010 and 2015. Figure 3 displays the trends in R&D expenditures for each of the six respondent intuitions reported by the NSF (2017) from 2010 to 2015. Figure 4 displays an expanded view R&D expenditure trends of SU, UM, UCSD, UP and UW.

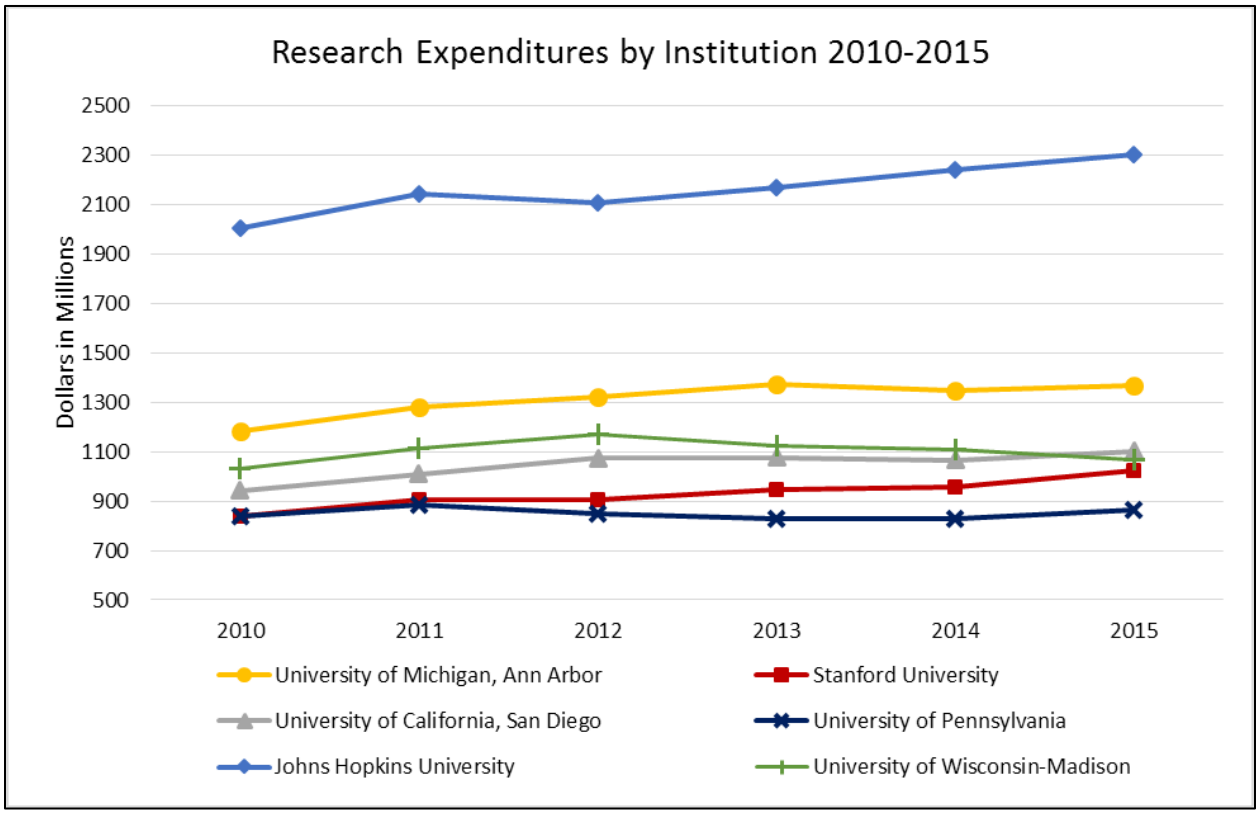

Figure 3. Research Expenditures by Institution 2010 – 2015

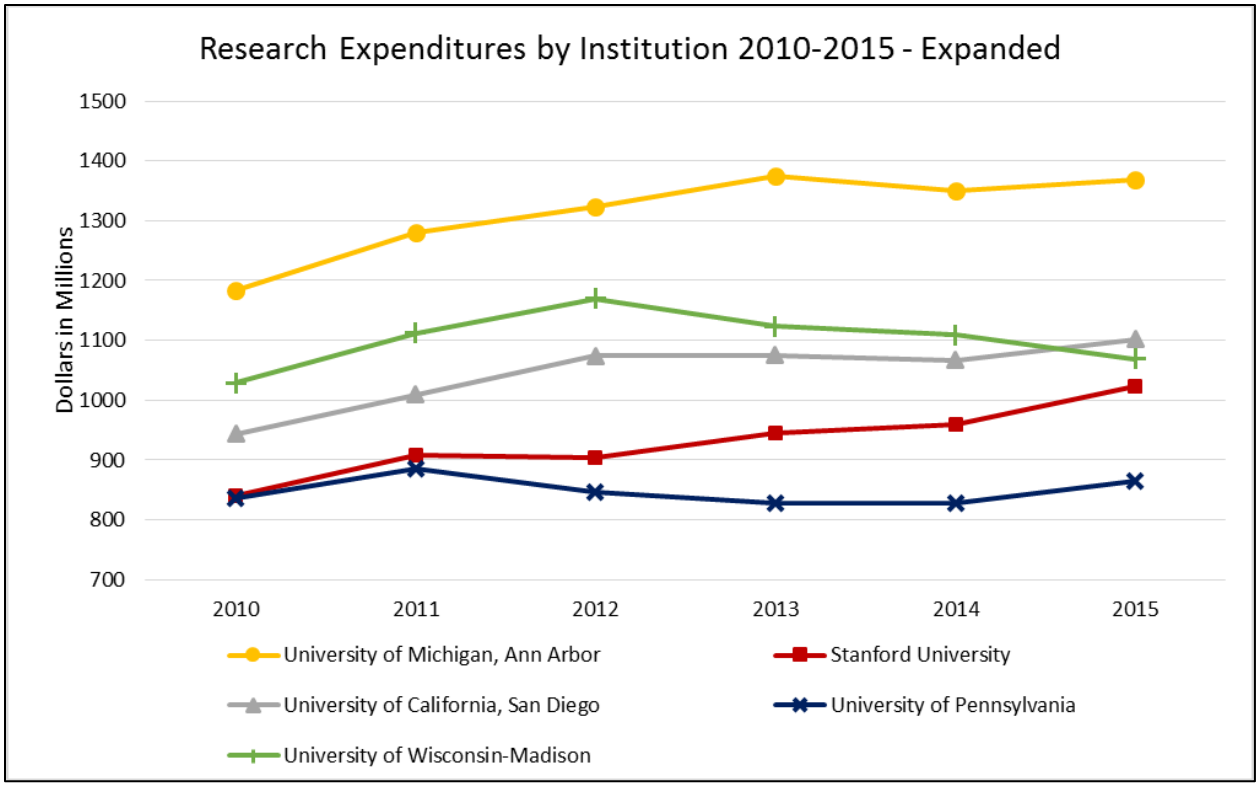

Figure 4. Research Expenditures by Institution 2010 – 2015 - Expanded.

Another reason it is difficult to determine the impact of structure alone on R&D expenditures is that it fails to account for external influences on institutional processes. For example, while UW did have an overall R&D expenditure increase from 2010 to 2015, UW showed a decrease in R&D expenditures from 2012 through 2015. One possible cause for the decrease is that UW was adjusting to a reduction in state funding. Between 2007 and 2011, state funding compromised approximately 20% of the overall UW budget, but since 2011, state support has reduced to approximately 15% of the total university budget (University of Wisconsin, 2017). In the 2016-2017 UW Budget in Brief report, UW stated that the decrease in support lead to a reduction in faculty. The loss of faculty in combination with the reduction in federal funding allotted for research might have impacted R&D expenditures at the institution.

Decentralized Structure

JHU was the only survey respondent to report using a decentralized research administration. JHU separated pre-award and post-award functions into different offices. JHU supported similar numbers of researchers as centralized SU (both estimated at 1,300). While JHU reported submitting more proposals in 2016 than SU, fewer new awards were funded than SU. JHU submitted 2,405 proposals and had 930 new awards funded compared to SU which submitted 2,000 proposals and had 1,675 new awards funded. Without metrics that account for differences in administrative workflow or proposal complexity, which were outside the scope of this project, it was difficult to directly compare these numbers despite the similarity in the number of research staff supported.

It is interesting that JHU reported using a decentralized structure since JHU also reported combining several research administration offices into one central office within the past five years. This would seem to be a move toward a hybrid structure, which is consistent with the claim by Smith et al. (2006) that all decentralized structures are actually hybrids. While the goal of the organizational change was reported to be only partially met, the goal of the change was not identified. The MIT research administration review team found that inconsistencies in staff responsibilities and compensation in different departments contributed to poor employee retention and increased audit findings (Smith et al. 2006). JHU reported the most informative metrics for pre-award research administration were workload, turnaround times, and subaward issuance. Additionally, JHU reported the average pre-award research administrator had been with the office for one to five years. Given this information, it is possible the consolidation of different offices into a centralized structure was not only intended to improve efficiency but also provide consistency for staff in order to improve retention of administrative employees. JHU

reported that new hires to the pre-award research administration offices required significant training upon hire. Improving employee retention would help reduce the costs associated with training new employees and provide faculty with a more experienced administrative staff.

Centralized Structures

UM reported that no changes had been made to the organizational structure and processes of research administration over the past five years. UM used a centralized research administration structure but did separate pre-award and post-award functions between different offices. UM reported that administrators stay with the pre-award research administration office for an average of 5-10 years. The separation or pre-award and post-award functions could allow for research administrators to become more specialized in the services they provide, and the reported average longevity of administrators at the office would provide a significant amount of experience. Despite having central research administrations, both UM and SU distribute workloads by department to pre-award administrative staff. This might improve communications between central administration and faculty. According to the NSF (2017), in 2015 UM had been ranked second in research and development expenditures for at least five years, increasing expenditures from approximately $1.2 billion in 2010 to just under $1.4 billion in 2015, an increase of over 13%. UM reported in 2016 supporting more researchers (2,270) than the other survey respondents. Additionally, UM submitted the highest number of proposals for funding of the surveyed institutions with 7,247 proposals, over twice as many as the next highest reported by UP with 3,526 proposals.

SU also uses a centralized structure for research administration. However, unlike UM, SU did not separate pre-award and post-award activities into different offices. SU reported that the staff remains with the research administration offices for an average of one to five years. The

most valued metrics listed by SU were employee workload, workload distribution, and turnaround times. While SU did make changes in research administration in the past five years, the details were not easily explained and therefore left out of the survey. An attempt by the author to find information regarding the changes to the pre-award administration on the SU website proved unsuccessful. These findings could indicate that SU research administrators are currently dealing with substantial workloads and actively seeking ways to reduce administrative burdens. There was a link prominently displayed at the top of the SU research administration website encouraging employees and administrators to provide ideas on how to streamline current research administration processes as well as indicate which processes are least efficient.[1] Perhaps one way SU could reduce employee workloads would be to reduce the number of services currently being offered by the pre-award administration staff. According to the survey results, SU is the only institution surveyed that offers services in budget creation, proposal development, and form completion.

The sheer number of services offered by pre-award administration does not appear to have a correlation with R&D expenditures or other outcomes. For example, UM did not report offering as many services as SU, but still submitted more proposals per researcher than SU (3.2 and 1.5, respectively. This indicates that simply offering a greater range of services is not likely the correct way to achieve overall institutional goals. UM was the only survey respondent to consider the most informative metric to be customer satisfaction. Since supporting research faulty is half of the dual function of research administration, customer satisfaction is important to consider when measuring the effectiveness of research administration services. As noted in the literature review, two key components to successfully implementing centralized research

[1] https://doresearch.stanford.edu/research-administration

administrations are to (1) change the perspectives of faculty and (2) properly train the research administration staff so there can still be a culture of individualized attention without the creating additional amounts of process, rules, and paperwork (Snyder et al. 2016; Goldenberg et al. 2016). It seems that UM has effectively accomplished both of these goals since the UM Office of Research and Sponsored Project website reported customer satisfaction for fiscal year 2015 was 92.1%.[2] Given this information, it appears the centralized pre-award organizational structure and processes at UM fit the goals of the institution and function as desired. This directly contradicts both Nguyen and Meek (2015) and Derrick and Nickson (2014), who argued that in order for research to be innovative and successful, decentralization was needed.

Hybrid Structures

Half of the institutions surveyed reported using hybrid research administration structures (UW, UP, and UCSD), yet each hybrid administration functioned differently. Each of the institutions used different methods for distributing workload to pre-award administrative staff. UW reported distributing workloads based on a first in, first out model. UP used a hybrid distribution model that accounted for both agreement type and department, which might allow for pre-award research administrators to become more knowledgeable about specific agreement types. UCSD distributed assignments to staff based on departments, similar to UM, SU, and JHU. This assignment distribution method was part of a recent change to pre-award research administration reported by UCSD. Previously, UCSD had distributed assignments based on sponsor or sponsor type. This change happened a few months prior to the survey, so it was too soon to evaluate the impact of the changes. UCSD did report that the change required a great deal of training for pre-award research administration staff to become more knowledgeable about

[2] http://orsp.umich.edu/

"all sponsors, sponsor types and activity types." It is possible this change was intended to improve communications between research administration and faculty. UP also reported recently making changes to research administration that were intended to improve customer service provided to faculty, however, the specifics of the changes were not provided.

UCSD and UW pre-award research administration offices reported similar outcomes, with 1.4 and 1.8 proposals submitted per researcher in 2016 (UCSD and UW, respectively), and 1.0 and 1.1 new awards funded per researcher (UCSD and UW, respectively). However, total numbers of researcher supported, proposals submitted and awards funded were quite different. UCSD supported 1,600 researchers, submitted 2,300 proposals, and received 1,600 new awards while UW supported 2,250 researchers, submitted 4,000 proposals, and received 2,400 new awards. Despite these differences, UCSD and UW were ranked number five and six, respectively, by NSF in R&D expenditures in 2015, with UCSD only about $32 million ahead of UW. These results highlight the difficulty in directly comparing metrics at different offices without taking additional variables into account.

Services and Staff

Each of the six institutions that responded to the survey reported supplying the following services through pre-award research administration: providing proposal development tools, proposal review, proposal approval, proposal submission, and negotiation of award terms and conditions. While these five core services could create a common vision for non-financial pre-award services that Saas and Kemp (2017) recommended, more research is needed to determine the decision processes and workflow involved with each activity at different institutions. The other most commonly reported service provided by respondent institutions was subaward

agreement preparation (SU, UP, JHU, and UW). The differences between the other services offered could be a result of different cultures or priorities at each institution.

Some of the literature suggested that the skills and capabilities of the research administration staff had more of an impact on operations than just the structure itself (Smith et al. 2006). Yet, half of the institutions surveyed (UM, JHU, and UW) reported that new hires require significant training which could indicate that new hires at those institutions are not experienced with research administration prior to being hired. Since those institutions are investing resources to train new hires, it would be in the best interest of the institution to keep employees satisfied so they remain with the institution longer. This could be challenging given the increased workloads, additional stress levels, and issues regarding work-life balance reported in the RASPerS survey (Shambrook 2012). JHU and UW reported that staff only remain with the pre-award administration for one to five years on average. Since both of these institutions reported workload as one of the most important metrics and recently implemented changes to the administrative structure, they could be trying to improve employee satisfaction. UM reported employees in the pre-award administration office stay for an average of five to ten years. Since UM customer satisfaction with research administration is high, this could imply that improving working relationships between faculty and research administrators improves employee retention.

Metrics

The results of the survey showed there were some common characteristics in the metrics listed for each of the five institutions. Workload and turnaround time were the most commonly listed metrics in the survey. While these metrics provide valuable information for internal benchmarks, they might not be useful in a comparison of efficiency against other institutions. Due to the complexity of some proposals (e.g. multidisciplinary), it is difficult to simply

compare the turnaround time, the number of proposals submitted relative to the number of active researchers, or the total amount of funding awarded (Waugaman, Kirby, and Tornatzky 2006; Marina, Davis-Hamilton, and Charmanski 2015).

Qualitative metrics also provide useful information for research administration. Specifically, customer satisfaction, which UM reported was the most important metric for pre-award administration and employee satisfaction. These two qualitative measures can help determine if administrative structures and processes are working efficiently for both faculty and research administrators. While five of the six survey respondents reported measuring employee satisfaction regularly, JHU reported never measuring employee satisfaction. Since JHU reported an average pre-award research administrator stays with the institution one to five years, never measuring employee satisfaction could be a problem for JHU. The low retention rate could be a result of a number of problems that could be identified using employee satisfaction surveys. Pre-award research administration staff could be leaving due to burnout or increased stress levels caused by problems noted in the RASPerS survey, such as increasing workloads or difficulty striking an effective work-life balance (Shambrook 2012). Research administrators might also leave if they do not feel appreciated by the faculty they support. Alternatively, since JHU uses a decentralized infrastructure for research administration, if there is not a strict roles and responsibilities matrix that applies to all of the institution, research administrators might leave for positions in other departments that provide better compensation. Since highly skilled research administrators are potentially more important to the efficiency of research administration than the processes and structures themselves, institutions should try and retain experienced administrators. Employee satisfaction surveys can not only identify potential areas where

administrators are experiencing the most difficulty, but can also help employees to feel more engaged and valued by their employer.

Chapter 5
Conclusion and Recommendations

Conclusion

"There is a continuing need to develop a better understanding of the research system in which we operate; its structure, the forces that shape it, and what needs to be done to achieve its full potential" (Kirby 1992, 42). There is no doubt that organizational structures impact the productivity and efficiency of research administration, which ultimately impacts the success of research at an institution. However, it is not the structures themselves that determine success, rather the proper implementation and management of these structures. Institutions should focus on aligning structures to facilitate overall institutional strategies and goals. Based on survey results, these efforts will likely lead to novel hybrid structures instead of purely centralized or decentralized organizational structures. Half of the respondent institutions reported using hybrid models for research administration. While JHU reported using a decentralized administrative structure, the institution also implemented changes within the past five years to consolidate several decentralized offices into one central office. Hybrid models offer a way to incorporate the consistency of centralization, while not losing the direct communications gained through decentralization. However, centralized offices can still overcome perceived communication weaknesses when managed well.

Despite some of the claims in the literature review, survey results did not indicate that a decentralized structure for pre-award research administration is standard or required for research to flourish. There is evidence that centralization of some specialized pre-award research administration functions improves efficiency, such as with the Circle of Support (Strakos and Riney 2006). Saas and Kemp (2017) suggested research administrators develop a common vision of non-financial pre-award software needs that would benefit a large number of institutions so

commercially available programs can be developed around that vision, rather than having individual systems at each institution. The survey identified five core services provide by each of the institutions that responded: providing proposal development tools, proposal review, proposal approval, proposal submission, and negotiation of award terms and conditions. These five services provide a starting point for this common vision of non-financial pre-award services valued by multiple institutions. However, software tools alone will not improve research administration services; many sources indicated a need for research administrators to be highly trained professionals (Wimsatt, Trice, and Langley 2009; Smith et al. 2006; Chun 2010; Nguyen and Meek 2015).

The survey results showed that research administrators at half of the institutions surveyed (UM, UCSD, and UP) were relatively experienced with an average of at least five years working in pre-award administration, while the other half of the surveyed institutions (SU, JHU, and UW) reported an average staff experience between one and five years. Highly skilled, experienced or educated research administrators could potentially reduce the risk of decentralized. Kirby (1996) argued that the ideal administrative system for research was one based on goals, outputs, efficiency and customer satisfaction, as opposed to compliance and audit findings. This ideal administration infrastructure would require research administration to monitor performance metrics and identify potential problems in processes before they arise.

The most common metrics provided through survey responses (staff workload and turnaround time) are difficult to use as metrics for direct comparisons with other institutions because they do not account for the complexities involved with individual proposals or contracts. No resolution was determined in regard to finding a set of standardized metrics to compare different pre-award research administration efficiencies. The complexity inherent in many of the

activities conducted by research administrators are difficult to accurately represent in simple metrics and other approaches will need to be identified for comparing institutions.

Recommendations

More research into the topic of currently used organizational structures for research administration at research-intensive institutions would add to generalizable knowledge and benefit research administration management in future strategic decisions. Due to the minimal nature of the free text responses received from the survey distributed, the author recommends gathering further data through individual interviews rather than surveys to allow for the capture of more detailed responses.

While some standard metrics have been established by different professional groups and consultant groups, publication of benchmarks or normal values would be beneficial. Additional work should be done in regard to determining an effective way of comparing pre-award administration efficiencies between institutions.

The MIT review team reported that decentralization of administrative processes did not apparently increase the risk associated with a lack of internal controls (Smith et al. 2006). Instead, it was determined that most risk identified in internal audits was associated with improper training. More research should be done to determine if the MIT team finding is true as a general rule, or just specific to MIT. If poor training of research administration staff has been the main cause of negative audit findings, it will highlight the need for highly trained administrators.

Appendix 1: IRB Approval Letter

JOHNS HOPKINS
UNIVERSITY

Homewood Institutional Review Board
3400 N. Charles Street
Baltimore MD 21218-2685
410-516-6580
http://web.jhu.edu/Homewood-IRB/

Michael McCloskey, PhD
Chair

Date: July 11, 2017

PI Name: Marianne Woods
Study #: HIRB00006121
Study Name: Pre-Award Research Administration Infrastructure Survey

Date of Review: 7/11/2017
Date of Approval: 7/11/2017

The Homewood IRB reviewed the information provided for the above-mentioned project and has determined that this research does not qualify as federally-regulated human subjects research, and therefore does not require IRB approval. This determination has been made with the understanding that the proposed research either (a) does not involve a systematic research investigation designed to develop or contribute to generalizable knowledge, or (b) does not collect identifiable private data about a human participant.

You may proceed with the study at any time. No further communications with the HIRB are necessary unless the procedures in your project are changed in such a manner that would require IRB review or approval.

Please keep this message in your files for future reference. Thank you for contacting the Homewood IRB about this research and for providing the requested information to make this determination. Your cooperation is greatly appreciated.

Approved Documents:

Recruiting Materials:
Email Script.docx

Study Team Members:
Erica Wolfe

Appendix 2: Survey Questions

Pre-Award Research Administration Infrastructure Survey

I am Erica Wolfe, a graduate student in the M.S. Research Administration Program at Johns Hopkins University. This survey will take approximately 10 minutes to complete. This survey is being administered to Research Administrators knowledgeable and authorized to speak about the Research Administration Offices at their institution. The purpose of the survey is to gather information on pre-award research administration infrastructure. The results of the survey will serve as a metric for all institutions and provide universities, research hospitals, and non-profit organizations with a better understanding of currently used pre-award infrastructures, functions, and metrics.

Your participation is voluntary and you can stop at any time. After collecting the survey responses, the data will be analyzed and reported without disclosing any sensitive or personally identifying information about the participants of this survey. Collection of this data is very important to me as this data is part of my graduate capstone project and is needed for me to graduate. The deadline to complete the survey is July 31, 2017. Your time and feedback are greatly appreciated.

This survey has been approved by the Johns Hopkins University IRB. My capstone project, once completed and accepted will be available in JScholarship (https://jscholarship.library.jhu.edu/). Your completion of this survey will serve as your consent to be in this research study. If you have any questions about this survey, please contact my advisor at Johns Hopkins University, Dr. Marianne Woods, Director of the M.S. program in Research Administration at mwoods9@jhu.edu. Thank you in advance for your participation in this survey.

Background Information

1. **Please name the institution where you are currently employed.**

_____

2. **Check the type of infrastructure for managing research administration at your institution.**
Mark only one oval.

- ◯ Centralized
- ◯ Decentralized
- ◯ Hybrid
- ◯ Other: _____

3. **You are employed at your institution as a research administrator in what office?**
Mark only one oval.

- ◯ Central Research Administration
- ◯ Dean's Office
- ◯ Departmental Office
- ◯ Institute/Center
- ◯ Other: _____

4. **At your institution, are pre-award and post-award activities handled by the same office?**
Mark only one oval.

- ◯ Yes
- ◯ No

5. **Do you work with pre-award administration or are you familiar with the structure and function of your institution's pre-award Research Administration Office?**
Mark only one oval.

- ◯ Yes *Skip to question 6.*
- ◯ No *Stop filling out this form.*

Functions and Capacity

6. **Please check all of the activities that are handled by the pre-award office that you work in:**
Check all that apply.

- ☐ Finding Funding
- ☐ Proposal Development
- ☐ Budget Creation
- ☐ Form Completion
- ☐ Providing Proposal Tools (e.g. Templates, Timelines, Checklists)
- ☐ Subaward Agreement Preparation
- ☐ Proposal Review
- ☐ Proposal Approval
- ☐ Proposal Submission
- ☐ Negotiation of Award Terms and Conditions
- ☐ Other: _____

7. **How many researchers were supported by the pre-award office last year?**

_____

8. **How many proposals were submitted by the pre-award office last year?**

_____

9. **How many new awards were funded in 2016?**

_____

10. **How many staff are employed in your pre-award office?**
Mark only one oval.

- ◯ 1-5
- ◯ 6-10
- ◯ 11-15
- ◯ Over16

11. **How is work predominantly distributed to the pre-award staff?**
Mark only one oval.

- ◯ By Department
- ◯ By Sponsor
- ◯ By Agreement Type
- ◯ First in, First out
- ◯ Other: _____

Pre-Award Administration Employees

12. **Please list the HR designated job titles for each of the pre-award staff employees in your pre-award office and the number of staff currently employed under these job titles. Suggested format: Job Title 1 - Number of Staff; Job Title 2 - Number of Staff; etc.**

_____

_____

_____

_____

_____

13. **What is the average length of time employees stay with the pre-award office?**
Mark only one oval.

- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 5-10 years
- ◯ 10-15 years
- ◯ 15-20 years
- ◯ Over 20 years

14. **Does your institution encourage promoting candidates from within the institution?**
Mark only one oval.

- ◯ Yes
- ◯ No

15. **How frequently is employee satisfaction measured in the pre-award office?**
Mark only one oval.

- ◯ Never
- ◯ Monthly
- ◯ Quarterly
- ◯ Semi-Annually
- ◯ Annually
- ◯ Other: _____

New Hires

16. **How long does it typically take to fill vacant positions?**
Mark only one oval.

- ◯ 1-3 weeks
- ◯ About 1 month
- ◯ 1-3 months
- ◯ 4-6 months
- ◯ Longer than 6 months

17. **Are new hires typically internal or external to the institution?**
Mark only one oval.

- ◯ Internal
- ◯ External
- ◯ Even mix of both

18. **Are new hires typically trained in Research Administration, or do they require significant training upon hire?**
Mark only one oval.

- ◯ Pre-trained
- ◯ Require training
- ◯ Even mix of both

Metrics

Metrics are quantitative or qualitative measures which are used to evaluate performance or track progress. Metrics come in a variety of forms including, but not limited to, "expenditures; publications and indicators of faculty reputations; proposals and grant awards; invitations and collaborations; indirect cost recovery; student engagement in research; space allocations;" and customer/faculty satisfaction surveys. Marina, S., Davis-Hamilton, Z., & Charmanski, K. E. (2015). Evaluating research administration: Methods and utility. Journal of Research Administration, 46(2), 95-114. Retrieved from http://search.proquest.com/docview/1771619006/fulltext/86FDD0A3982F483BPQ/12accountid=11752

19. **Are there any metrics the pre-award office uses to measure efficiency or success?**
Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Don't Know

20. **If metrics are used, please list what you consider to be the three most informative.**

_____

_____

_____

_____

_____

Organizational Changes

21. **Has your institution implemented any organizational changes to the Research Administration Offices within the past 5 years? (e.g. Switched from a decentralized to centralized structure; changed job responsibilities for specific positions; created new job titles; changed new hire requirements)**
Mark only one oval.

- ◯ Yes
- ◯ No *Skip to question 24.*

Organizational Changes (cont.)

22. **If yes, please briefly describe the changes made and the intended goal.**

_____

_____

_____

_____

_____

23. **Did these changes achieve the desired goal?**
Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Partially met
- ◯ Unknown
- ◯ Other: _____

Research Administration Organizational Chart

24. **If available please provide a link to an organizational chart for the Research Administration Offices.**

_____

_____

_____

_____

_____

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Biography

Erica Wolfe received her Bachelors of Science Degree in Biomedical Sciences from the Rochester Institute of Technology in 2008. Prior to graduation, she studied business and biology abroad in the Netherlands at the Webster University and the Hogeschool van Arnhem en Nijmegen. She has experience working in analytical laboratories as well as in research. She has worked with research groups at Johns Hopkins University since 2012 as a Registered Polysomnographic Technician, a Research Coordinator, and an Administrative Coordinator. She has knowledge and experience in proposal preparation, human subjects research, and university-industry partnerships.